



THE CITY OF SAN DIEGO

City of San Diego
Planning & Development Review
Building Development Review
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Building Newsletter 17-5

Bolt/Dowel/Rod Installation Using Adhesive Anchor Systems

Interpretations of State and Local Building Codes
1998 California Building Code: Chapter 17
Revision Date: July 1999

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I. General

- A. This building newsletter describes requirements for approval of the installation of anchor bolts, reinforcing dowels or threaded rods in existing concrete or masonry construction by placing the dowel, rod or bolt in a pre-drilled hole filled with epoxy adhesive resin (referred to adhesive anchor systems herein after).
- B. The adhesive anchor system used in connections in concrete and masonry construction must be authorized by the responsible design engineer of record for its intended use and approved by the Building Official. It is the sole responsibility of the engineer of record to specify an approved product on plans, details and specifications in compliance with the requirements stated in this building newsletter.
- C. The contractor responsible for installation of adhesive anchor systems is also responsible for proper installation of the approved product and to schedule for special inspection during installation in accordance with the requirements set forth in this building newsletter and the approved permitted plans, details and specifications. Any substitutions of the adhesive anchor systems as noted on the approved permitted documents by any other products is not permitted unless it is authorized by the design engineer of record and approved by the Building Official.

II. Qualification

- A. Connections Resisting Wind or Earthquake Loads
 1. All adhesive anchor systems used in connections in concrete and masonry constructions in resisting wind or earthquake loads must comply with the wind and earthquake testing standards established by the International Conference of Building Officials (ICBO).
 2. Adhesive anchor systems are considered to be approved by the City of San Diego, for use in connections in concrete or masonry construction in resisting wind or earthquake loads when, they are listed by ICBO and have a valid and current evaluation report in compliance with the California Building Code (Building Code) permitting the anchors to be used in resisting earthquake or wind loads. The adhesive anchor systems are not considered to be approved when, the ICBO evaluation report states that the use of such anchors in resisting wind or earthquake loads are beyond the scope of that report.

B. Connections Resisting Loads Other Than Wind or Earthquake Loads

1. All adhesive anchor systems used in connections in concrete and masonry construction in resisting loads as prescribed by the Building Code other than wind or earthquake loads, are considered to be approved by the City of San Diego when, they are listed by ICBO and have a valid and current evaluation report in compliance with the Building Code, permitting the anchors to be used for their intended design, use and purpose.
2. Adhesive anchor systems may not be suitable and therefore are not permitted for use in resisting vibratory or shock loads or in fire-resistive construction. Refer to the ICBO evaluation report of the specified adhesive anchor system for permitted applications.

III. Special Inspection Requirements

- A. During installation of adhesive anchor systems, special inspection may be required by the ICBO evaluation report of the specified product, the responsible engineer of record or the Building Official to verify compliance with Building Code Section 1701.5.
- B. Where special inspection is required, the special inspector must be on the job site continuously during the anchor installation to observe and verify the anchor type, anchor dimensions, type of concrete or masonry, compressive strength of the concrete or masonry, pre-drilled hole dimensions, anchor spacing, edge distance, end distance, thickness of the structural member, anchor embedment, installation procedure, mixing procedure of the adhesive resin, and tightening torque in accordance with the ICBO evaluation report.
- C. Special inspections must be performed by special inspectors certified by the City of San Diego, Planning and Development Review, Inspection Services Division. Where the adhesive anchor system is used in concrete construction, the special inspector must be certified under Reinforced Concrete category. Where the adhesive anchor system is used in masonry construction, the special inspector must be certified under Structural Masonry category.

A list of approved construction materials testing laboratories and special inspection agencies is available from Inspection Services.
- D. Exception: Special inspection may be waived by the Building Official for installation of adhesive anchor systems in non-structural applications. Such con-

nection detail must be authorized by the design engineer of record and approved by the Building Official.

IV. Field Tension-Load Testing

- A. Tension-load testing (pull-testing) of the adhesive anchor system at the job site is permitted to be performed where it is required by the ICBO evaluation report or where it is approved by the Building Official. Such tension-load testing must be performed by construction materials testing laboratories approved by the City of San Diego, Planning and Development Review, Inspection Services Division. A list of approved construction materials testing laboratories and special inspection agencies is available upon request from Inspection Services.
- B. The City of San Diego does not permit tension-load testing (pull-testing) of non-complying installed adhesive anchor systems to verify compliance or to substitute for special inspection requirements.

V. Non-Complying Installation

- A. Where adhesive anchor systems have been installed without the required special inspection, or where special inspection was performed by a special inspector not certified by the City of San Diego in Reinforced Concrete category or Structural Masonry category as applicable, or where the work performed is not in compliance with the requirements set forth by the ICBO evaluation report, permitted plans, details and specifications, or where the product has an invalid/expired ICBO evaluation report or where the product is not listed by ICBO, such work is considered to be non-complying installation.
- B. Non-complying installation of adhesive anchor sys-

tems are considered not acceptable and therefore not approved by the City of San Diego. In such an event, the non-complying installed adhesive anchor systems shall be abandoned or removed and new approved adhesive anchor systems installed under continuous special inspection by a City of San Diego certified special inspector in accordance with the requirements set forth in this building newsletter and the approved permitted plans, details and specifications.

- C. The City of San Diego does not permit tension-load testing (pull-testing) of non-complying installed adhesive anchor systems to verify compliance or to substitute for special inspection requirements.

VI. Acceptance of Reports

The special inspection report(s) must be submitted to the responsible design engineer of record and the Inspection Services for review and approval. Such inspection reports must state that the installation of adhesive anchor systems was performed in accordance with the requirements set forth by the specified ICBO evaluation report and approved permitted plans, details and specifications.

VII. Other Information

For other related information refer to the Building Newsletter 17-1. Current ICBO evaluation reports may be obtained directly from ICBO Evaluation Service on the organization's web site at www.icbo.org or by calling (562) 699-0543.

For questions regarding special inspection, construction materials testing, structural observation and off-site fabrication of building components, you may call Inspection Services at (858) 492-5070.